Royal Society. As he died before Burnet's *History* was published, their testimonies are quite independent. Equally independent is the testimony of Anthony à-Wood; and if such evidence is to be rejected, I think there are few facts in history that can be considered as established.

Having stated the case as fairly as I am able, I beg leave, with the greatest respect both to my learned opponent and yourself, to subscribe myself,

<div style="text-align:center">Dear Sir,</div>

<div style="text-align:center">Your faithful servant,</div>

Campden Hill, W.,   W. B. HODGE.
    13th June, 1859.

PROFESSOR SYLVESTER'S LECTURES.

To the Editor of the Assurance Magazine.

SIR,—In some former communications, I have urged upon the consideration of your readers that the doctrine of life contingencies, in place of being based, as for years past, upon specific, and, in many instances, dogmatic assumptions, should rather recognise the results with which it has to deal as essentially variable, and, as such, better predicated for by a system of variation than one of assumptive fixity.

Your readers are aware, that one great step has already been taken in this direction, by the now recognised admission, that, even in the calculations of compound interest, it is not advisable to always assume that the interest upon interest will necessarily be at the same rate as the interest or dividend upon the original capital. The modern actuary is thus not thrust, as the old school were, upon such a generalization as that in $(1+i)$ compounded for n years, the value of i must be necessarily constant.

Indeed, you have already inserted tables by Mr. Peter Hardy, involving a mixed rate for annuities certain; and Mr. Willich has illustrated the same principle in life annuities in the new edition, just published, of his excellent *Popular Tables.* Thus, in new Table IV., the value of a life annuity (Carlisle mortality) is, at age 30, 16·37 years' purchase, if the simple interest be 4 per cent., but varies in compounding to 3. It will thus be seen that, even in tables deservedly called "Popular," the change is commencing.

The more particular object, however, of the present communication is to direct the attention of your readers to some discoveries, for so they may be rightly called, of Professor Sylvester, which, I think, will eventually be found to also aid the progress of actuarial calculation—and not the less so because the learned Professor has heretofore been a member of the profession.

The purpose of the discoveries is, I think, sufficiently defined in the following paragraph, which appeared in the *Times* of Saturday, June 10th, 1859, and which I accordingly beg to offer for your insertion, and venture to recommend to the notice of members of the Institute who are still perfecting their mathematical education.

I shall only premise, that, if we pass from a system of special values to one of limits, the partition of numbers becomes, immediately, of the highest importance—the vagueness of an average that does not indicate

from what elements it is derived, depriving it, in many cases, of practical value.   But if, by a ready system of partition, not only simple, but compound, we can indicate, within easy limits, the probability of the composition of averages, or numbers considered as such, as a matter of derivation, it will be at once seen that we are afforded a new resource in enforcing the justness of the previsions which an actuary is always, more or less, bound to enunciate, but, as I contend, not necessarily in a specific form.

"*Professor Sylvester's Mathematical Lectures.*—On Monday and Thursday last, Professor Sylvester delivered, at King's College, the first two of a series of lectures on some researches and discoveries which he has recently made in the partitions of numbers.   The subject is one which has engaged the attention of the most able analysts—Paoli, De Morgan, Warburton, Herschell, Kirkman, Cayley; but it appears that even they have left a wide field still unexplored.   The only problem which these mathematicians had proposed was that of simple partition—namely, to find in how many ways a given number can be composed of given numbers. Their solutions, moreover, are to some extent indirect, and consist in determining a convenient expression from which the required result may be calculated, rather than in actually calculating the result itself.   Mr. Sylvester, however, by a direct and elementary process, arrives at the required expression.   But, more than this, he proceeds to investigate the problem, never before attacked, of double partition—namely, to find in how many ways can a given pair of numbers, or a couple, as he terms them, be composed of a given set of couples.   His method consists of showing that double, triple, and generally compound partition, may be made to depend upon simple partition.   Considerable interest was added to the lectures by a happy illustration, derived from a comparison of the problem in question with that of finding the centre of gravity of a system of points; or rather, with the inverse problem of weighting a given system of points so as to be in equilibrium with a given weight at a given point.   This mode of illustration lends itself so readily to the subject, that every peculiar case was graphically represented to the audience.   We are told, by those who recollect him, that Monge could, by a turn of the wrist and by the shrug of the shoulders peculiar to his nation, render the most complex geometrical figure intelligible to his pupils.   We are not aware of any other similar attempt being made in London at expounding in public lectures a very abstruse branch of mathematics; but we may fairly say, that the lecturer's clear and forcible manner of exposition was perfectly successful, and, if we may judge from the satisfaction expressed by nearly sixty attentive hearers, the verdict was unanimous.   The lectures are gratuitous, and are to be continued every Monday and Thursday until the completion of the subject."

The especial interest I take in the progression of our professional studies must be my excuse for troubling you with this somewhat unusual style of communication.

<div align="center">Your obedient servant,</div>

<div align="right">E. J. FARRREN.</div>

London, June 15th, 1859.